APPENDIX C

Shorelines Critical Areas Regulations

Shorelines Critical Areas Regulation

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1. Introduction

All new uses and development activities proposed for shoreline areas in the City of Kelso must comply with the provisions of the Washington State Shoreline Management Act (RCW 90.58), the Washington Administrative Code (WAC 173-26 and 173-27), the updated Kelso Shoreline Master Program, and the Kelso Municipal Code. In addition, it is important to note that in many instances shoreline areas under the jurisdiction of the Shoreline Management Act (SMA) also involve environmentally sensitive areas, or critical areas, that are subject to protection under the provisions of the Washington State Growth Management Act (GMA). In those instances where the requirements of both the SMA and the GMA apply, the courts have ruled that the provisions of the SMA must prevail. As a result, any new use or development activity proposed for an area under the jurisdiction of the Shoreline Management Act that also involves one or more of the protected critical areas must also comply with the following regulations in this Appendix. For new uses and development activities outside of shoreline jurisdictional shoreline areas that involve critical areas, please refer to Chapter 18.20 of the Kelso Municipal Code.

1.1 Applicability.

All development activities, including new uses of land and buildings and changes of use, must comply with all provisions of this Chapter as well as all applicable provisions of local, state, and federal law.

A. Critical areas, subject to the provisions of this Appendix shall consist of:

    1. Wetlands;

    2. Geologically Hazardous Areas;

    3. Fish and Wildlife Habitat Conservation Areas;

    4. Frequently Flooded Areas; and

    5. Critical Aquifer Recharge Areas.

B. It shall be the responsibility of property owners and applicants of proposed development activities to know the location of critical areas and jurisdictional shoreline areas on and near their property and to comply with the provisions of these regulations at all times.

    1. Property owners and applicants that may be proposing development activities in proximity of critical areas are strongly encouraged to schedule an appointment to discuss the applicability of these regulations prior to preparing and submitting land use applications to the City.

2. The City shall maintain public maps that may assist in the identification of critical areas. However, it shall be the responsibility of the property owner or applicant to identify and map all critical areas on their property.

    a. The presence of a critical area and/or its associated buffer within jurisdictional shoreline areas on a parcel triggers the requirements of these regulations, regardless of whether or not a critical area or buffer is depicted on an official map.

C. All persons proposing development in critical areas or their buffers within shoreline jurisdictional areas shall obtain the appropriate shoreline permit(s) and City approvals pursuant to these regulations prior to beginning the development. Development exempt from the shoreline substantial development permit requirements pursuant to WAC 173-27-040 are still subject to the substantive requirements of this SMP and may be required to obtain a shoreline conditional use or variance permit, pursuant to Kelso SMP Chapter 8. Development activities shall include but are not limited to the following:

1. Removing, clearing, grading, excavating, disturbing, or dredging soil, sand, gravel, minerals, organic matter, or materials of any kind;

2. Dumping, discharging, or filling with any material, including discharges of storm water and domestic, commercial, or industrial wastewater;

3. Subdivisions, short subdivisions, planned unit residential developments (PURDs), mobile home parks, and recreational vehicle (RV) parks;

4. Construction, reconstruction, demolition, or expansion of any structure or infrastructure;

5. Construction of any new public or private road or driveway;

6. Destroying or altering vegetation through clearing, harvesting, cutting, intentional burning, shading, or planting non-native species where these activities would alter the character of a critical area or its buffer;

7. Draining, flooding, or disturbing the water level, duration of inundation, or water table;

8. Activities causing significant adverse changes in water temperature, physical or chemical changes of water sources to wetlands or surface water systems;

9. The driving of pilings;

10. The placing of obstructions;

11. Significant vegetation removal, provided that these activities are not part of a forest practice governed under Chapter 76.09 RCW and its rules;

12. Other uses or development that results in an ecological impact to the physical, chemical, or biological characteristics of wetlands; or

13. Activities reducing the functions of buffers.

1.2 Exclusions from the Critical Areas Regulations.

A. Critical Areas Exclusions. The following development, activities, and associated uses are not subject to the requirements of the critical areas regulations in this Appendix; however, the critical areas exclusions are not exemptions from the Shoreline Master Program or the Shoreline Management Act. Consistency with the Shoreline Master Program and the Act must be met, whether or not a permit is required.

1. Development occurring within a volcanic hazard area and containing no other critical area as defined by these regulations.

2. Installation, construction, or replacement of utility lines in improved rights-of-way, not including electric substations.

3. The removal or control of noxious weeds by non-mechanical means.

4. Regular landscape maintenance of ornamental ground cover or other vegetation in a critical area or buffer area, through replanting, trimming, or continued mowing, that was disturbed prior to the effective date of this Shoreline Master Program; provided, that no further disturbance is created.

5. Minimal site investigative work required by a city, state, or federal agency, or any other applicant, such as surveys, soil logs, percolation tests, and other related activities; provided impacts on critical areas are minimized and disturbed areas are restored to the pre-existing level of function and value within one year after tests are concluded.

6. Passive recreational uses such as sport fishing, scientific or educational review, or similar minimum-impact, non-development activities.

7. Maintenance of intentionally created artificial wetlands or surface water systems including irrigation and drainage ditches, grass-lined swales and canals, detention facilities and landscape or ornamental amenities. Wetlands, streams, lakes, or ponds created as mitigation for approved land use activities or that provide critical habitat are not exempt and shall be regulated according to the regulations herein and the associated mitigation plan, if applicable.

1.3 General Provisions.

A. Mitigation Sequencing. Property owners or applicants shall, when designing proposed new development activities that may potentially affect critical areas, use the following measures, listed in priority order, to avoid, minimize, and/or mitigate adverse impacts:

1. Avoiding the adverse impact altogether by not taking a certain action or parts of an action or moving the proposed action;

2. Minimizing adverse impacts by limiting the degree or magnitude of the action and its implementation by using appropriate technology and engineering, or by taking affirmative steps to avoid or reduce adverse impacts;

3. Rectifying the adverse impact by repairing, rehabilitating, or restoring the affected environment;

4. Reducing or eliminating the adverse impact over time by preservation and maintenance operations during the life of the action;

5. Compensating for the adverse impact by replacing, enhancing, or providing similar substitute resources or environments; and/or

6. Monitoring the impact and taking appropriate corrective measures.

B. Critical Areas reports. If the site of a proposed development includes, is likely to include, or is adjacent to a critical area, a critical areas report, prepared by a qualified professional, shall be required (see Appendix C-4 for details).

1. The cost of preparing any required critical areas report(s) shall be borne by the applicant.

2. Critical areas reports shall be prepared by a qualified professional(s) as defined in this SMP.

3. The cost of a professional peer review of any required critical areas report shall be borne by the applicant.

4. Individual critical areas reports may be combined with other required critical areas or shoreline reports, in a format approved by the City.

C. Additional Application Requirements. In addition to the application requirements identified in the City's Shoreline Master Program, Chapter 8, Shoreline Administration and Enforcement, the following application requirements shall be met:

1. It shall be the responsibility of property owners and applicants of proposed development activities to identify all critical areas and jurisdictional shoreline areas on their property and within 300 feet of their property lines on all application materials, including a required SEPA environmental checklist.

2. If a proposed development activity that may have a potential adverse impact on a critical area does not require a shoreline permit, compliance with the provisions of these regulations, the SMP, and the Shoreline Management Act is still required and a Shoreline Letter of Exemption shall be issued to ensure compliance.

3. All land use applications submitted to the City involving critical areas must include a SEPA Checklist and, at a minimum, such information identified in WAC 173-27-180.

D. Buffer Requirements.

1. In the event that more than one buffer applies to a proposed development, the buffer affording the highest level of protection should apply where the buffers overlap.

    a. For example, if a development proposal involves a parcel that includes a jurisdictional shoreline, a jurisdictional wetland, and a non-jurisdictional fish-bearing stream there could be three different buffer requirements applicable to the site. Where the buffer areas overlap, the widest buffer area would apply, unless a lesser buffer area is approved in accordance with the provisions of these regulations.

E. Emergency Measures to Protect the Public Health and Safety. Nothing in these regulations shall prevent a public agency or a private property owner from taking emergency actions necessary to protect persons and property from immediate or urgent threats to the public health and safety.

1. Emergency measures should be limited to reasonable measures necessary to protect the public health and safety from the immediate or urgent threat.

2. The City and state and federal agencies, such as the Washington State Department of Fish and Wildlife, should be contacted as soon as is practical after the emergency action to determine whether any additional measures are required and what, if any, after-the-fact permits may be required.

3. Remediation may be required after the fact to restore the site to pre-emergency conditions. Once the immediate threat has been addressed, any adverse impacts to critical areas shall be mitigated according to the provisions found in Section 6.1 of the SMP.

4. Property owners are advised that the failure to take appropriate preventive measures; the failure to secure required permits in advance; the failure to meet conditions of approval, including the maintenance of erosion-control measures; and/or the failure to act in a timely manner may not constitute an emergency and may result in the imposition of civil penalties and/or remediation measures.

F. Performance Bonds. In an effort to ensure the successful installation, operation, and maintenance of compensatory mitigation measures or other requirements under these regulations, the City may require a performance bond(s) or comparable financial guarantee.

1. The performance bond or guarantee may be up to 150% of the estimated cost of the required improvement.

2. The duration and form of the financial guarantee shall be determined by the City in consultation with the City Attorney.

1.4 Optional Incentives for Nondevelopment of Critical Areas.

A. Introduction. This Section describes the alternatives available to property owners and incentives they may pursue in lieu of developing or altering their property under the terms and standards of these regulations. The incentives and options listed allow property owners to use any or all of the options that best suit their needs. City staff review of a selected incentive option(s) will be undertaken with the advice and consent of the applicable state agency or agencies.

B. Conservation Easement. Any person who owns property containing an identified critical area as defined by these regulations shall be entitled to place a conservation easement over that portion of the property designated a critical area by naming the city or its qualified designee under RCW 64.04.130 as beneficiary of the conservation easement. The purpose of the conservation easement shall be to protect, preserve, maintain, restore, limit the future use of, or conserve for open space purposes, the land designated as critical area(s), in accordance with RCW 64.04.130. Details governing easement restrictions shall be negotiated between the property owners and the City.

C. Density Transfer. The City shall allow transfer of density for residential uses from lands containing critical areas within shoreline jurisdiction, as defined by these regulations, when developed pursuant to Chapter 16.36 of the Kelso Municipal Code, this SMP, and the Shoreline Management Act. Residential density may be transferred only from a critical area to an area on the same site that is not a critical area.

D. Density Credits. For development proposals on lands determined to contain critical areas as defined by these regulations, the City shall determine allowable dwelling units for residential development proposals based on the formula below:

Percentage of Site in Critical Area	Density Credit
1–30	90%
31–60	70%
61–90	50%

The density credit can be applied only within the development proposal site. The applicant may reduce lot sizes below the minimum required for that zoning district (RSF, RMF) to accommodate the transfer of density, but it cannot change the residential uses permitted in the zone.

Example: Size of proposed development site is 10 acres. Zone is RSF-15 Residential Single Family. Lot size is 15,000 square feet or 2.9 units per acre. (10 acres is 435,600 square feet; 435,600 divided by 15,000 square feet equals 29 lots). There are three acres of critical areas on the 10-acre site, or 30 percent of the total site area. The density credit according to the above table is 90 percent. The allowable adjustment is 29 lots multiplied by 90 percent, which equals 26 lots on the remaining seven acres. Note: without the density credit, the developer would exclude the three-acre critical area from development. The site would be seven acres at 15,000 square feet, and would allow 20 lots.

1.5 Permits.

No separate critical areas permit is required for a development proposal that requires a shoreline development permit. All applicable critical areas requirements in Appendix C shall be incorporated into a Shoreline Substantial Development Permit, Shoreline Conditional Use Permit, Shoreline Variance, or Shoreline Letter of Exemption as applicable, and the applicable shoreline permit or exemption shall be obtained prior to undertaking any development activity regulated by the SMP.

1.6 Relationship to Other Regulations.

A. These critical areas regulations shall apply within shoreline jurisdiction in addition to zoning and Shoreline Environment Designations adopted by the City.

B. Any individual critical area adjoined by another type of critical area shall have the buffer and meet the requirements that provide the most protection to the critical areas involved. When any provision of these regulations or any other existing regulation, easement, covenant, or deed restriction conflicts with these regulations, that which provides the most protection to the critical areas shall apply.

C. These critical areas regulations shall apply concurrently with review conducted under this SMP and State Environmental Policy Act (SEPA), as locally adopted. Any conditions required pursuant to these regulations shall be included in the SEPA review and threshold determination and any required shoreline permit.

2. Critical Area Wetlands

A. Identification of wetlands and delineation of their boundaries pursuant to these regulations shall be done in accordance with the approved federal wetland delineation manual and applicable regional supplements. All areas both within the City and within the shoreline jurisdiction, per RCW 90.58, meeting the wetland designation criteria in that procedure are hereby designated critical areas and are subject to the provisions of these regulations. Wetland delineations are valid for five (5) years; after such date the City shall determine whether a revision or additional assessment is necessary.

B. Wetland Rating. Wetlands shall be rated according to the Washington Department of Ecology wetland rating system, as set forth in the *Washington State Wetland Rating System for Western Washington: 2014 Update* (Ecology Publication #14-06-007), or as revised. The descriptions of wetland categories according to the Rating System are as follows:

1. **Category I.** Category I wetlands are: (1) relatively undisturbed estuarine wetlands larger than 1 acre; (2) wetlands of high conservation value that are identified by scientists of the Washington Natural Heritage Program/DNR; (3) bogs; (4) mature and old-growth forested wetlands larger than 1 acre; (5) wetlands in coastal lagoons; (6) interdunal wetlands that score 8 or 9 habitat points and are larger than 1 acre; and (7) wetlands that perform many functions well (scoring 23 points or more). These wetlands: (1) represent unique or rare wetland types; (2) are more sensitive to disturbance than most wetlands; (3) are relatively undisturbed and contain ecological attributes that are impossible to replace within a human lifetime; or (4) provide a high level of functions.

2. **Category II.** Category II wetlands are: (1) estuarine wetlands smaller than 1 acre, or disturbed estuarine wetlands larger than 1 acre; (2) interdunal wetlands larger than 1 acre or those found in a mosaic of wetlands; or (3) wetlands with a moderately high level of functions (scoring between 20 and 22 points).

3. **Category III.** Category III wetlands are: (1) wetlands with a moderate level of functions (scoring between 16 and 19 points); (2) can often be adequately replaced with a well-planned mitigation project; and (3) interdunal wetlands between 0.1 and 1 acre. Wetlands scoring between 16 and 19 points generally have been disturbed in some ways and are often less diverse or more isolated from other natural resources in the landscape than Category II wetlands.

4. **Category IV.** Category IV wetlands have the lowest levels of functions (scoring fewer than 16 points) and are often heavily disturbed. These are wetlands that we should be able to replace, or in some cases to improve. However, experience has shown that replacement cannot be guaranteed in any specific case. These

wetlands may provide some important functions, and should be protected to some degree.

C. Development Limitations—Alterations of Wetlands. Alteration of all wetlands shall be fully mitigated and not be allowed unless mitigation sequencing has been followed. Regulated development shall conform with and be governed by the following:

1. Alteration of Category I wetlands is prohibited unless the alteration would improve habitat to threatened or endangered species occupying the habitat. This improvement of both functions and values must be demonstrated within the wetland critical areas report and the mitigation plan. A qualified expert may use best professional judgment to design a plan to allow such alterations to Category I wetlands.

2. Alteration of Category II wetlands may be allowed only when it is demonstrated by a qualified expert through a wetlands site assessment that any of the following criteria are met:

    a. Public benefit will accrue through the alteration, and no reasonable and practical alternative to the alteration exists through on-site design or through acquisition of additional area; or

    b. The alteration would enhance or maintain the existing wetland function and value, or the alteration would create a higher value or less common wetland type, which would improve the function or value of the wetland as indicated within the wetland critical areas report and the mitigation plan.

3. Alteration of Category III wetlands may be allowed only when it is demonstrated through a wetlands site evaluation that any of the following criteria are met:

    a. Public benefit will accrue through the alteration and absence of reasonable practicable alternative.

    b. No reasonable and practical alternative to the alteration exists through on-site design.

    c. The impacts are fully mitigated.

4. Alteration of Category IV wetlands may be allowed if feasible alternatives cannot be identified during the site plan review process, state and federal regulatory agencies concur with allowing the alteration, and impacts are fully mitigated.

5. Activities Allowed in Wetlands. The activities listed below are allowed in wetlands, subject to all requirements in the Shoreline Master Program. These activities do not require submission of a critical areas report, except where such activities would result in a reduction or loss of the functions and values of a wetland or wetland buffer. These activities include:

a. Conservation or preservation of soil, water, vegetation, fish, shellfish, and/or other wildlife that does not entail changing the structure or functions of the existing wetland.

b. The harvesting of wild crops in a manner that is not injurious to natural reproduction of such crops, and provided the harvesting does not require tilling of soil, planting of crops, chemical applications, or alteration of the wetland by changing existing topography, water conditions, or water sources.

c. Enhancement of a wetland through the removal of nonnative, invasive plant species. Removal of invasive plant species shall be restricted to hand removal unless permits from the appropriate regulatory agencies have been obtained for approved biological or chemical treatments. All removed plant material shall be taken away from the site and appropriately disposed of. Plants that appear on the Washington State Noxious Weed Control Board list of noxious weeds must be handled and disposed of according to a noxious weed control plan appropriate to that species. Re-vegetation using hand-held equipment with appropriate native species at natural densities is allowed in conjunction with removal of invasive plant species.

d. Educational and scientific research activities that do not degrade the critical area.

D. Wetland Buffers. Wetland buffers shall be designated in accordance the following:

1. Buffers are required for all wetlands. Wetland buffer widths are established in Table 1-A of this Section.

2. Buffer widths shall be measured perpendicular to the delineated boundaries of the regulated wetland and extend the required distance.

3. The standard buffer widths assume that the buffer is vegetated with a native plant community appropriate for the ecoregion. If the existing buffer is unvegetated, sparsely vegetated, or vegetated with invasive species that do not perform needed functions, the buffer should either be planted to create the appropriate plant community, or the buffer should be widened to ensure that adequate functions of the buffer are provided.

4. If an applicant chooses not to apply the mitigation measures in Table 1-B, then a 33% increase in the width of all buffers is required. For example, a 75-foot buffer with the mitigation measures would be a 100-foot buffer without them.

5. The authorization of variable buffer widths intended to protect the functions of the wetland shall be based on a wetland assessment conducted by a qualified wetland professional, to evaluate the impact of current and proposed land use on the wetland. Wetland functions include but are not limited to flood control

functions, ground and surface water aquifer recharge functions, and sediment retention and pollution control functions (refer to Subsection E of this Section for buffer averaging).

6. Wetland buffer widths intended to protect fish and wildlife habitat shall be based on Table 1-A.

7. Buffer widths can be reduced below the minimums when site-specific, abrupt topographical changes such as cliffs, or human-made features such as levees, dikes, railroads, or streets, indicate that extending the buffer beyond such features will not improve wetland protection.

Table 1-A. Wetland Buffer Requirements within Shoreline Jurisdiction

Wetland Category	Buffer width if wetland scores:			
	3-4 habitat points	**5 habitat points**	**6-7 habitat points**	**8-9 habitat points**
Category I: Based on total score	75 ft	Add 30 ft	Add 90 ft	Add 150 ft
Category I: Bogs and Wetlands of High Conservation Value	190 ft			
Category I: Forested	75 ft	Add 30 ft	Add 90 ft	Add 150 ft
Category II	75 ft	Add 30 ft	Add 90 ft	Add 150 ft
Category III	75 ft	Add 45 ft	Add 105 ft	Add 165 ft
Category IV	40 ft			

Buffer widths in Table 1-A require the mitigation measures below in Table 1-B, where applicable.

Table 1-B. Required measures to minimize impacts to wetlands in Shoreline Management Act Jurisdiction

Disturbance	Required Measures to Minimize Impacts
Lights	• Direct lights away from wetland
Noise	• Locate activity that generates noise away from wetland • If warranted, enhance existing buffer with native vegetation plantings adjacent to noise source • For activities that generate relatively continuous, potentially disruptive noise, such as certain heavy industry or mining, establish an additional 10-ft heavily vegetated buffer strip immediately adjacent to the outer wetland buffer

Disturbance	Required Measures to Minimize Impacts
Toxic runoff	• Route all new, untreated runoff away from wetland while ensuring wetland is not dewatered • Establish covenants limiting use of pesticides within 150 ft of wetland • Apply integrated pest management
Stormwater runoff	• Retrofit stormwater detention and treatment for roads and existing adjacent development • Prevent channelized flow from lawns that directly enters the buffer • Use low-intensity development techniques (per PSAT publication on LID techniques)
Change in water regime	• Infiltrate or treat, detain, and disperse into buffer new runoff from impervious surfaces and new lawns
Pets and human disturbance	• Use privacy fencing OR plant dense native vegetation to delineate buffer edge and to discourage disturbance • Place wetland and its buffer in a separate tract or protect with a conservation easement
Dust	• Use best management practices to control dust
Disruption of corridors or connections	• Maintain connections to offsite areas that are undisturbed • Restore corridors or connections to offsite habitats by replanting

E. Wetland Buffer Width Averaging

1. Buffer widths may be modified by averaging buffer widths or by enhancing buffer quality as set forth herein:

   a. Buffer width averaging shall be allowed only where:

      i. The wetland has significant differences in characteristics that affect its habitat functions, such as a wetland with a forested component adjacent to a degraded emergent component or a “dual-rated” wetland with a Category I area adjacent to a lower-rated area.

      ii. The buffer is increased adjacent to the higher-functioning area of habitat or more-sensitive portion of the wetland and decreased adjacent to the lower-functioning or less-sensitive portion as demonstrated by a critical areas report from a qualified wetland professional.

      iii. The total area of the buffer after averaging is equal to the area required without averaging.

      iv. The buffer at its narrowest point is never less than either three-quarters of the required width or seventy-five (75) feet for Categories I and II, fifty (50) feet for Category III, and twenty-five (25) feet for Category IV, whichever is greater.

   b. Averaging to allow reasonable use of a parcel may be permitted when all of the following are met:

i. There are no feasible alternatives to the site design that could be accomplished without buffer averaging.

ii. The averaged buffer will not result in degradation of the wetland's functions and values as demonstrated by a critical areas report from a qualified wetland professional.

iii. The total buffer area after averaging is equal to the area required without averaging.

iv. The buffer at its narrowest point is never less than either three-quarters of the required width or seventy-five (75) feet for Categories I and II, fifty (50) feet for Category III, and twenty-five (25) feet for Category IV, whichever is greater.

2. Notwithstanding the reductions permitted in Subsections E.1.a and b of this Section, buffer widths shall not be reduced by more than twenty-five percent of the required buffer or to less than twenty-five (25) feet, whichever is wider.

3. The minimum buffer width stated in Table 1-A of this Section shall not be required to be increased more than one hundred twenty-five percent (buffer width times 1.25) when the qualified wetland professional determines, based upon a site-specific wetland analysis, that impacts on the wetland from a proposed development can be mitigated only by a greater buffer width. The standard wetland buffer width shall be increased:

   a. When the adjacent land is susceptible to severe erosion, and erosion-control measures will not effectively prevent adverse wetland impacts; or

   b. When the standard buffer has minimal or degraded vegetative cover that cannot be improved through enhancement; or

   c. When the minimum buffer for a wetland extends into an area with a slope of greater than fifteen percent, the buffer shall be the greater of:

      i. The minimum buffer for that particular wetland; or

      ii. Twenty-five (25) feet beyond the point where the slope becomes fifteen (15) percent or less.

4. Required buffers shall not prevent all reasonable use of property. A shoreline variance from buffer width requirements may be granted provided that the applicant meets the variance criteria in WAC 173-27-170.

5. All shoreline variances shall be in accordance with the Shoreline Master Program and the Shoreline Management Act.

F. Activities Allowed in a Wetland Buffer Zone. The following uses may be allowed within a wetland buffer in accordance with the review procedures of this Appendix C, provided they are not prohibited by any other applicable law and they are conducted in a manner so as to minimize impacts to the buffer and adjacent wetland:

1. Passive Recreation Development Activity. Passive recreation facilities (such as constructed walkways, trails, and viewing platforms) designed and in accordance with an approved critical area assessment, including:

    a. Walkways and trails; provided, that those pathways are generally parallel to the perimeter of the wetland, are located in the outer 25 percent of the buffer area, are constructed with a surface that does not interfere with the soil permeability, and the surface of which is no more than five (5) feet wide. The design and construction of walkways and trails shall avoid impacts to established native woody vegetation. Raised boardwalks utilizing nontreated pilings are acceptable;

    b. Wildlife viewing structures less than 200 square feet.

2. Stormwater Management Facilities. Stormwater management facilities are not allowed in buffers of Category I or II wetlands. Stormwater management facilities, limited to stormwater dispersion outfalls and bioswales, may be allowed within the outer twenty-five (25) percent of the buffer of Category III or IV wetlands provided that:

    a. No other location is feasible; and

    b. The location of such facilities will not degrade the functions or values of the wetland.

3. Utility Transmission Facilities. Utility facilities which carry liquid petroleum products or any other hazardous substance as defined in Chapter 173-303 WAC may be permitted within wetland buffers only when demonstrated by a qualified professional that the design, location, and monitoring of the proposed facility will not cause adverse effects to the buffer or wetland.

4. Normal and routine maintenance and repair of any existing public or private facilities within an existing right-of-way, provided that the maintenance or repair does not increase the footprint or use of the facility or right-of-way.

5. Non-Conforming Uses. Repair and maintenance of non-conforming uses or structures, where legally established within the buffer, provided they do not increase the degree of nonconformity.

G. Mitigation Standards.

1. All adverse impacts to wetlands and buffers as identified in the wetlands critical areas report shall be specified in a mitigation plan consistent with Kelso development standards, be prepared by a qualified expert, and be consistent with the standards outlined in Table 2.

Table 2. Wetland Mitigation Ratios within the jurisdiction of the Shoreline Management Act (RCW 90.58)

Category and Type of Wetland	Creation or Re-establishment	Rehabilitation	Enhancement
Category I: Bog, Natural Heritage site	Not considered possible	Case by case	Case by case
Category I: Mature Forested	6:1	12:1	24:1
Category I: Based on functions	4:1	8:1	16:1
Category II	3:1	6:1	12:1
Category III	2:1	4:1	8:1
Category IV	1.5:1	3:1	6:1

2. Buffer Mitigation Ratios. Impacts to buffers shall be mitigated at a 1:1 ratio. Compensatory buffer mitigation shall replace those buffer functions lost from development.

3. Mitigation Sequencing. Before impacting any wetland or its buffer, an applicant shall demonstrate that the following actions have been taken. Actions are listed in the order of priority:

   a. Avoid the impact altogether by not taking a certain action or parts of an action.

   b. Minimize impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps to avoid or reduce impacts.

   c. Rectify the impact by repairing, rehabilitating, or restoring the affected environment.

   d. Reduce or eliminate the impact over time by preservation and maintenance operations.

   e. Compensate for the impact by replacing, enhancing, or providing substitute resources or environments.

   f. Monitor the required compensation and take remedial or corrective measures when necessary.

4. Requirements for Compensatory Mitigation:

    a. Compensatory mitigation for alterations to wetlands shall be used only for impacts that cannot be avoided or minimized and shall achieve equivalent or greater biologic functions. Compensatory mitigation plans shall be consistent with *Wetland Mitigation in Washington State – Part 2: Developing Mitigation Plans--Version 1*, (Ecology Publication #06-06-011b, Olympia, WA, March 2006 or as revised) and *Selecting Wetland Mitigation Sites Using a Watershed Approach* (Western Washington) (Publication #09-06-32, Olympia, WA, December 2009).

    b. Mitigation ratios shall be consistent with the ratios in Table 2.

    c. As an alternative to the ratios in Table 2, the Credit/Debit method may be used. To more fully protect functions and values, the City may allow mitigation based on the "credit/debit" method developed by the Department of Ecology in "*Calculating Credits and Debits for Compensatory Mitigation in Wetlands of Western Washington: Final Report*," (Ecology Publication #10-06-011, Olympia, WA, March 2012), or as revised.

    d. The area where the mitigation occurred and any associated buffer shall be located in a critical area tract or a conservation easement.

    e. Monitoring. Mitigation monitoring shall be required for a period necessary to establish that performance standards have been met, but not for less than five years. If a scrub-shrub or forested vegetation community is proposed, monitoring may be required for ten years or more. The project mitigation plan shall include monitoring elements that ensure certainty of success for the project's natural resource values and functions. If the mitigation goals are not attained within the initial five-year period, the applicant remains responsible for restoration of the natural resource values and functions until the mitigation goals in the mitigation plan are achieved.

5. Wetland mitigation actions shall not result in a net loss of wetland areas except when the following criteria are met:

    a. The lost wetland area provides minimal functions and the mitigation action(s) results in a net gain in wetland functions as determined by a site-specific function assessment; or

    b. The loss of wetland area provides minimal functions as determined by a site-specific function assessment, and other replacement habitats provide greater benefits to the functioning of the watershed, such as riparian habitat restoration and enhancement.

6. Mitigation actions shall address functions affected by the alteration to achieve functional equivalency or improvement, and shall provide similar wetland functions as those lost except when:

    a. The lost wetland provides minimal functions as determined by a site-specific function assessment and the proposed mitigation action(s) will provide equal or greater functions or will provide functions shown to be limiting within a watershed through a formal watershed assessment plan or protocol; or

    b. Out-of-kind replacement will best meet formally identified regional goals such as replacement of historically diminished wetland types.

7. Mitigation Preference. Mitigation actions that require compensation by replacing, enhancing or substitution, shall occur in the following order of preference:

    a. Restoration (re-establishment and rehabilitation) of wetlands:

        i. The goal of re-establishment is returning natural or historic functions to a former wetland. Re-establishment results in a gain in wetland acres (and functions). Activities could include removing fill material, plugging ditches, or breaking drain tiles.

        ii. The goal of rehabilitation is repairing natural or historic functions of a degraded wetland. Rehabilitation results in a gain in wetland function but does not result in a gain in wetland acres. Activities could involve breaching a dike to reconnect wetlands to a floodplain or return tidal influence to a wetland.

    b. Creation (establishment) of wetlands on disturbed upland sites such as those with vegetative cover consisting primarily of non-native species. Establishment results in a gain in wetland acres. This should be attempted only when there is an adequate source of water and it can be shown that the surface and subsurface hydrologic regime is conducive to the wetland community that is anticipated in the design.

        If a site is not available for wetland restoration to compensate for expected wetland and/or buffer impacts, the approval authority may authorize creation of a wetland and buffer upon demonstration by the applicant's qualified wetland scientist that:

        i. The hydrology and soil conditions at the proposed mitigation site are conducive for sustaining the proposed wetland and that creation of a wetland at the site will not likely cause hydrologic problems elsewhere;

        ii. The proposed mitigation site does not contain invasive plants or noxious weeds or that such vegetation will be completely eradicated at the site;

iii. Adjacent land uses and site conditions do not jeopardize the viability of the proposed wetland and buffer (e.g., due to the presence of invasive plants or noxious weeds, stormwater runoff, noise, light, or other impacts); and

iv. The proposed wetland and buffer will eventually be self-sustaining with little or no long-term maintenance.

c. Enhancement of significantly degraded wetlands in combination with restoration or creation. Enhancement should be part of a mitigation package that includes replacing the altered area and meeting appropriate ratio requirements. Enhancement is undertaken for specified purposes such as water quality improvement, flood water retention, or wildlife habitat. Enhancement alone will result in a loss of wetland acreage and is less effective at replacing the functions lost. Applicants proposing to enhance wetlands or associated buffers shall demonstrate:

i. How the proposed enhancement will increase the wetland's/buffer's functions;

ii. How this increase in function will adequately compensate for the impacts; and

iii. How all other existing wetland functions at the mitigation site will be protected.

d. Preservation. Preservation of high-quality, at-risk wetlands as compensation is generally acceptable when done in combination with restoration, creation, or enhancement, provided that a minimum of 1:1 acreage replacement is provided by re-establishment or creation. Ratios for preservation in combination with other forms of mitigation generally range from 10:1 to 20:1, as determined on a case-by-case basis, depending on the quality of the wetlands being altered and the quality of the wetlands being preserved.

Preservation of high-quality, at-risk wetlands and habitat may be considered as the sole means of compensation for wetland impacts when the following criteria are met:

i. The area proposed for preservation is of high quality. The following features may be indicative of high-quality sites:

(A) Category I or II wetland rating (using the wetland rating system for Western Washington)
(B) Rare wetland type (for example, bogs, mature forested wetlands, estuarine wetlands)
(C) The presence of habitat for priority or locally important wildlife species.

(D) Priority sites in an adopted watershed plan.

ii. Wetland impacts will not have a significant adverse impact on habitat for listed fish, or other ESA listed species.

iii. There is no net loss of habitat functions within the watershed or basin.

iv. Mitigation ratios for preservation as the sole means of mitigation shall generally start at 20:1. Specific ratios should depend upon the significance of the preservation project and the quality of the wetland resources lost.

v. Permanent preservation of the wetland and buffer will be provided through a conservation easement or tract held by a land trust.

vi. The impact area is small (generally <½ acre) and/or impacts are occurring to a low-functioning system (Category III or IV wetland).

8. All mitigation sites shall include buffer areas adequate to protect the habitat and its functions from encroachment and degradation.

9. Wetland Mitigation Banks.

   a. Credits from a wetland mitigation bank may be approved for use as compensation for unavoidable impacts to wetlands when:

      i. The bank is certified under state rules;

      ii. The City determines that the wetland mitigation bank provides appropriate compensation for the authorized impacts; and

      iii. The proposed use of credits is consistent with the terms and conditions of the certified bank instrument.

   b. Replacement ratios for projects using bank credits shall be consistent with replacement ratios specified in the certified bank instrument.

   c. Credits from a certified wetland mitigation bank may be used to compensate for impacts located within the service area specified in the certified bank instrument. In some cases, the service area of the bank may include portions of more than one adjacent drainage basin for specific wetland functions.

10. When an applicant proposes to alter or eliminate a regulated wetland, the applicant shall be required to replace or enhance the function and value of the wetland. Compensatory mitigation for alterations to wetlands shall be used only for impacts that cannot be avoided or minimized and shall achieve equivalent or greater biologic functions. Compensatory mitigation plans shall be consistent with Wetland Mitigation in Washington State – Part 2: Developing Mitigation

Plans (Versions 1), Ecology Publication #06-06-11b, Olympia, WA, March 2006 or as revised.

H. Mitigation bonding may be required at the discretion of the city staff to ensure design and construction of compensatory mitigation projects.

3. Fish and Wildlife Habitat Conservation Areas

A. Designation of Critical Fish and Wildlife Habitat Conservation Areas. Critical fish and wildlife habitat conservation areas are designated according to the classifications in the following table:

Classifications WAC 365-190-130	Description
(1) Areas with which state designated endangered, threatened, or sensitive species have a primary association. Example: Coweeman River	Areas which, if significantly altered, may reduce the likelihood that the species will reproduce over the long term. Habitats associated with these species are those identified by the Washington Department of Fish and Wildlife's Habitat and Species Maps, as amended. These habitats are designated as critical areas, where endangered, threatened, and sensitive species are verified to have a primary association.
(2) Species and habitats of local importance	Habitat: Unique or significant habitats which regionally rare wildlife species depend upon and that have high wildlife concentrations, including: 1. Caves, 2. Talus slopes, 3. Snag rich areas (outside forest practices). Species: Wildlife species which require protective measures for their continued existence due to their population status or sensitivity to habitat alterations or are highly valued by the local citizens. Species meeting the above criteria but not depending upon a habitat of local importance (as listed above) to meet criteria habitat needs are those documented, verified, and mapped in Cowlitz County.
(3) Smelt spawning areas.	The entire length of the Cowlitz River adjacent to the city of Kelso is smelt spawning territory.
(4) Naturally occurring ponds under twenty acres and their submerged aquatic beds that provide fish or wildlife habitat.	Naturally occurring ponds with a surface area of less than twenty acres but greater than one acre. Naturally occurring ponds do not include ponds deliberately created from dry sites such as canals, detention facilities, wastewater treatment facilities, farm ponds, temporary construction ponds (of less than three years' duration), and landscape amenities. However, naturally occurring ponds may include those artificial ponds intentionally created from dry areas in order to mitigate conversion of ponds, if permitted by a regulatory authority.
(5) Waters of the state.	Waters of the state shall be those defined in WAC 222-16-030, Forest Practices Board, Definitions, with the following revisions: (a) Type S Water – all waters, as inventoried as “shorelines of the state” under Chapter 90.58 RCW and the rules promulgated pursuant to Chapter 90.58 RCW including periodically inundated areas of their associated wetlands. (b) Type F Water – means segments of natural waters, which are not classified as Type S Water and have fish, wildlife, or human use. These are segments of natural water and periodically inundated areas of their associated wetlands. (c) Type Np Water – means all segments of natural waters within defined channels that are perennial nonfish habitat streams. Perennial streams are waters that do not go dry any time of a year of normal rainfall. However, for the purpose of water typing, Type Np Waters include the intermittent dry portions of the perennial channel below the uppermost point of perennial flow.

Classifications WAC 365-190-130	Description
	(d) Type Ns Water – means all segments of natural waters within defined channels that are not Type S, F, or Np Waters. These are seasonal, nonfish habitat streams in which surface flow is not present for at least some portion of a year of normal rainfall and are not located downstream from any stream reach that is a Type Np Water. Ns Waters must be physically connected by an aboveground channel system to Type S, F, or N Waters.
(6) Lakes, ponds, streams, and rivers planted with game fish by a governmental agency or tribal entity.	The Cowlitz River is planted with game fish by governmental agencies.
(7) State natural area preserves and natural resource conservation areas.	Currently, there are no natural resource conservation areas within the City of Kelso.
(8) Unintentionally created ponds.	Ponds with a surface area of less than twenty (20) acres, but greater than one (1) acre.

B. Development Performance Standards. Development or regulated activity shall conform to and be governed by the following items in this Section. Mitigation plans including most current, accurate, and complete scientific and technical information available should be developed by a qualified fish and wildlife biologist.

1. When impacts to critical fish and wildlife habitat cannot be avoided, the performance standards contained in this Section shall be used to develop plans submitted for regulated activities.

2. Consider habitat in site planning and design.

3. Locate buildings and structures in a manner that preserves the habitat or minimizes adverse impacts.

4. Consolidate habitat and vegetated open space in contiguous blocks, and where possible locate habitat contiguous to other habitat, open space or landscaped areas to contribute to a continuous system or corridor that provides connections to adjacent habitat areas.

5. Use native species in any landscaping of disturbed or undeveloped areas and in any enhancement of habitat or buffers.

6. Emphasize heterogeneity and structural diversity of vegetation in landscaping.

7. Remove and/or control any noxious or undesirable species of plants.

8. Preserve trees to the extent possible, preferably in consolidated areas.

9. Preserve and introduce native plant species which serve as food, shelter from climatic extremes and predators, and structure and cover for reproduction and rearing of young for critical wildlife.

10. Preserve the natural hydraulic and ecological functions of drainage systems.

11. Preserve critical fish and wildlife habitat areas through maintenance of stable channels; adequate flow levels; and management of stormwater runoff, erosion, and sedimentation.

12. Manage access to critical fish and wildlife habitat areas to protect species that are sensitive to human disturbance.

13. Maintain or enhance water quality through control of runoff and use of best management practices.

C. Overlap of Critical Areas. Section 1.6, Relationship to Other Regulations, notwithstanding, if a fish or wildlife habitat classification is determined to be a wetland, the most protective measures will apply.

D. Habitat Management Plan—Classification 1 Only. A habitat management plan shall be required (Appendix C-5) if the regulated activity is within two hundred fifty feet of a Classification 1 habitat area, or identified within one thousand feet of a point location (nests, dens, etc.) for a Classification 1 habitat area. Areas identified landward of the dike are exempt from HMP requirements for aquatic species.

1. The habitat management plan will be prepared by a qualified expert in a format consistent with Appendix C-5.

2. Habitat management plans will be sent to the Washington State Department of Fish and Wildlife and other state and federal agencies with jurisdiction for comment with the SEPA checklist.

E. Habitat Protection for Classification 2. Protection for these habitat areas shall be through the development performance standards listed above.

F. Habitat Protection for Classifications 4, 5, and 6. Protection for these habitat areas shall be required through the Shoreline Management Act, the Federal Clean Water Act, and the State Hydraulic Code and/or best management practices. Within Classification 5, Type 1, 2, and 3 waters are regulated streams, as defined in WAC 222-16-030, Forest Practices Board, Definitions.

G. The stream typing system as provided in WAC 222-16-030 as hereafter amended shall be utilized for stream classification. The Department of Natural Resources stream classification maps shall be used to determine classification unless the critical areas report provides a basis for reclassification. The City may consult with the Department of Natural Resources and Washington Department of Fish and Wildlife to gain concurrence on any change in classification.

H. The following standard buffers shall apply to the waterbodies classified in F and G, above. Buffers shall be measured horizontally and perpendicular from the OHWM:

Table 3. Water Body Buffers within Shoreline Management Act Jurisdiction

Stream	RHA Buffer Width (feet)
Type S Water	Refer to Table 4
Type F Water (Type 2)	150
Type F Water (Type 3)	100
Type Np Water	50
Type Ns Water	50

Table 4. Reach-Specific Shoreline Buffers

Reach Number	Water Body	Shoreline Environment Designation	Buffer
KS-01	Columbia River	Urban Conservancy	150 ft. (Water-oriented) 200 ft. (Non-water-oriented)
KS-02	Columbia River	High-Intensity	100 ft. (Water-oriented) 150 ft. (Non-water-oriented)
KS-03	Cowlitz River	High-Intensity	100 ft. (Water-oriented) 150 ft. (Non-water-oriented)
KS-04	Cowlitz River	High-Intensity	From the OHWM to the boundary of the existing railroad right-of-way.
KS-05	Cowlitz River	Urban Conservancy	From the OHWM to the waterward toe of the levee.
KS-06	Cowlitz River	Residential	50 ft.
KS-07	Cowlitz River	Residential	From the OHWM to the waterward toe of the levee.
KS-08	Cowlitz River	High-Intensity	25 ft. (Water-oriented) 75 ft. (Non-water-oriented) From the OHWM to the waterward toe of the levee, as applicable.
KS-09	Cowlitz River	High-Intensity	From the OHWM to the waterward toe of the levee.
KS-10	Cowlitz River	High-Intensity	From the OHWM to the waterward toe of the levee.
KS-11	Owl Creek	High-Intensity	150 ft.
KS-12	Owl Creek	Urban Conservancy	From the OHWM to the boundary of the right-of-way.
KS-13	Owl Creek	High-Intensity	From the OHWM to the boundary of the right-of-way.
KS-14	Coweeman River	High-Intensity	From the OHWM to the waterward toe of the levee.
KS-15	Coweeman River	High-Intensity	From the OHWM to the waterward toe of the levee.
KS-16	Coweeman River	High-Intensity	50 ft.

Reach Number	Water Body	Shoreline Environment Designation	Buffer
KS-17	Coweeman River	Urban Conservancy	200 ft.
KS-18	Coweeman River	High-Intensity	From the OHWM to the Boundary of the right-of-way.
KS-19	Coweeman River	Residential	100 ft.
KS-20	Coweeman River	Residential	100 ft.
KS-21	Coweeman River	Residential	100 ft.
KS-22	Coweeman River	High-Intensity	From the OHWM to the waterward toe of the levee.
KS-23	Coweeman River	Urban Conservancy	From the OHWM to the waterward toe of the levee.
KS-24	Coweeman River	Residential	From the OHWM to the waterward toe of the levee.
KS-25	Coweeman River	Residential	150 ft.; Or, from the OHWM to the waterward toe of the levee, as applicable.

I. Buffer widths assume that the buffer is vegetated with a native plant community appropriate for the ecoregion. If the existing buffer is unvegetated, sparsely vegetated, or vegetated with invasive species that do not perform needed functions, the buffer should either be planted to create the appropriate plant community or the buffer should be widened to ensure that adequate functions of the buffer are provided.

J. Buffer averaging may be allowed where the applicant demonstrates:

1. There are no feasible alternatives to the site design that could be accomplished without buffer averaging;

2. Within the existing buffer there are areas with significant differences in characteristics that affect its habitat functions and would not be addressed by revegetation;

3. The buffer is increased adjacent to the higher-functioning area of habitat or more sensitive portion of the water body and decreased adjacent to the lower functioning or less sensitive portion;

4. The buffer averaging does not reduce the functions or values of the water body or riparian habitat, or the buffer averaging, in conjunction with vegetation enhancement, increases the habitat function;

5. The total area of the buffer after averaging is equal to the area required without averaging and all increases in buffer dimension for averaging are generally parallel to the water's edge; and

6. The buffer at its narrowest point is never less than seventy-five (75) percent of the required width; unless an existing human improvement that cannot be feasibly relocated is located closer to the water body.

K. The following uses are allowed in water body buffers and building setbacks in all SEDs consistent with Table 7-1 of the SMP, provided that mitigation sequencing is demonstrated and any adverse impacts to ecological functions are mitigated.

1. Water-dependent uses. Water-dependent uses, modifications and activities, including public access, may be located in shoreline buffers at the water's edge without obtaining a Shoreline Variance, provided the project submittal includes a Critical Area Report (see Appendices C-1 through C-4 of this Appendix C), and the project otherwise complies with this Program.

2. Accessories to water-dependent uses (not including parking lots). Uses, developments and activities accessory to water-dependent uses shall be located outside any applicable standard or reduced shoreline buffer unless at least one of the following is met:

   a. Proximity to the water-dependent project elements is critical to the successful implementation of the facility's purpose and the elements are supportive of the water-dependent use (e.g., a road to a boat launch facility);

   b. Recreational development with a primary use to access or enjoy the water is already legally established in parks or on other public lands, and the proposed accessory use does not conflict with or limit opportunities for other water-oriented uses; or

   c. The primary water-dependent use or activity is located on a parcel entirely or substantially encumbered by the required buffer.

   In these circumstances, uses and modifications accessory to water-dependent uses must be designed and located to minimize intrusion into the buffer. All other accessory uses, developments and activities proposed to be located in a shoreline buffer must obtain a Shoreline Variance unless otherwise allowed by other regulations in this Section or in this SMP.

3. Shoreline residential access. A private access pathway constructed of pervious materials may be installed, a maximum of four (4) feet wide, through the shoreline buffer to the OHWM. Impervious materials may be used only as needed to comply with ADA requirements to construct a safe, tiered pathway down a slope. A railing may be installed on one edge of the pathway, a maximum of 36 inches tall and of open construction. Pathways to the shoreline should take the most direct route feasible consistent with any applicable ADA standards.

4. Linear transportation and utility crossings. New linear transportation and utility crossings may be located in shoreline buffers without obtaining a Shoreline Variance, provided the project complies with all other provisions of this Program.

L. Habitat Protection for Classification 7 (see Section 3.A). Protection for state natural area preserves and natural resource conservation area habitats will be achieved through assistance from the Washington State Department of Natural Resources, Department of Fish and Wildlife, and the Department of Ecology.

M. Habitat Protection for Classification 8 (see Section 3.A). Protection for habitat provided by unintentionally created ponds shall be through Section 1.2, Exclusions from the Critical Areas Regulations.

4. Frequently Flooded Critical Areas

A. Frequently Flooded Area Classifications and Designation. All lands identified in Section 18.12.070 of the Kelso Municipal Code, as amended, and approved by the City, as within the one-hundred-year floodplain are designated as frequently flooded areas.

B. Development Limitations. All development within designated frequently flooded areas shall comply with Chapter 18.12 of the Kelso Municipal Code (KMC), in effect on the date that this SMP was formally approved by the Department of Ecology, with the exception that development subject to KMC 18.12.320(B) must also be demonstrated to:

   1. Not cause further limitation of channel migration; and

   2. Include appropriate protection of ecological functions.

5. Geologic Hazard Areas

This Section acknowledges the application of other relevant codes and regulations, which may require mutual compliance.

A. For all regulated activities proposed within designated landslide, erosion, seismic and mine hazard areas, a geotechnical assessment or an erosion hazard assessment prepared by a qualified expert shall be submitted and coordinated with International Building Code requirements. (See Appendices C-1 and C-2.)

B. If the geotechnical assessment indicates an inability of the site to accommodate the proposed activity without special measures or precautions as determined by a qualified expert, the City may require a geotechnical report. (See Appendix C-3.)

C. The following define the different types of geologic hazard areas:

1. Erosion Hazard Areas. Erosion hazard areas are those areas identified by the presence of soils that are recognized as having a severe erosion hazard by the Natural Resources Conservation Service, Cowlitz Area, Washington.

2. Landslide Hazard Areas. Landslide hazard areas are those areas meeting any of the following criteria:

a. Areas of historic failure, such as areas designated as quaternary slumps, earthflows, mudflows, or landslides;

b. Any area with the following:

i. Steep hillsides intersecting geologic contacts with a relatively permeable sediment overlying a relatively impermeable sediment or bedrock, that has or exhibits evidence of springs or groundwater seepage;

ii. Slopes that are parallel or sub-parallel to planes of weakness, such as bedding planes, joint systems, and fault planes;

iii. Slopes having gradients greater than eighty percent and subject to rock fall during seismic shaking;

iv. Areas potentially unstable as a result of rapid stream incision, stream bank erosion, and undercutting by wave action;

v. Areas located in a canyon, on an active alluvial fan, or that are presently subject to inundation by debris flows or catastrophic flooding;

vi. Areas identified as being medium or high probability of slope instability based on Washington State Department of Natural Resources soils based stability model or the most current map adopted by the city and filed with the city clerk;

vii. Areas identified as being medium or high probability of slope instability based on field visits along with reasonable assumption of city planning staff or other qualified experts with localized knowledge of present site conditions.

3. Seismic Hazard Areas. For the purposes of this classification, a seismic hazard area is any area indicated by a zone 2B or higher rating as defined by the Seismic Risk Map of the United States, adopted by the Washington State Legislature and defined in the International Building Code (IBC/IRC).

4. Mine Hazard Areas. For the purposes of this classification mine hazard areas are:

   a. Abandoned mines and/or workings where locations are known.

   b. Abandoned mines and/or workings where exact locations are unknown, but based upon the best available information there is good cause to believe it is within an area that may be reasonably delineated.

5. Volcanic Hazard Areas. For the purposes of this classification, all volcanic mudflow hazard areas shall be identified as the five-hundred-year floodplain areas identified in FEMA maps.

D. Development within geologic hazard areas shall meet the following requirements:

1. Development Standards for Landslide Hazard Areas and Erosion Hazard Areas. Any allowed or regulated activity on areas identified as landslide or erosion hazards or their buffers shall conform to the following standards:

   a. Buffers.

      i. An undisturbed fifty-foot buffer, as measured on the surface, is required from the top, toe, and along all sides of any existing landslide or eroded area, within a critical area;

      ii. Based on the results of the geotechnical assessment, the director may increase or decrease the buffer or require additional areas including buffers as indicated; and

      iii. The buffer shall be clearly staked before and during any construction or clearing.

b. General Design Guidelines.

   i. Structures should be clustered where possible to reduce disturbance and removal of vegetation;

   ii. Foundations should conform to the natural contours of the slope; and

   iii. Roads, walkways, and parking areas should be designed to parallel the natural contours of the site.

c. Grading.

   i. Clearing, grading, and other construction activities shall not aggravate or result in slope instability or surface sloughing;

   ii. Undergrowth shall be retained to the maximum extent feasible;

   iii. No dead vegetation (slash), fill, or other foreign material shall be placed within a landslide or erosion hazard area, other than that approved for bank stabilization or if such fill is consistent with authorized activities specified in a geotechnical report; and

   iv. Minimize ground disturbance to the maximum extent feasible by not allowing clearing from May 1st to October 1st of every year.

d. Erosion Control.

   i. There shall be minimum disturbance of trees and vegetation in order to reduce erosion and maintain existing stability of hazard areas;

   ii. Vegetation removal on the slopes of banks between the ordinary high water mark and the top of the banks shall be minimized because of the potential for erosion;

   iii. Vegetation and organic soil material shall be removed from fill site prior to the placement of fill;

   iv. Thinning of limbs of individual trees is preferred over tree removal as a means to provide a view corridor; and

   v. Vegetative cover or engineered ground covers shall be placed on any disturbed surface to the extent feasible.

e. Drainage.

   i. Surface drainage, including downspouts, shall not be directed across the face of a hazard area. If drainage must be discharged from the top of a hazard area to its toe, it shall be collected above the top and directed to the toe by tight line drain, and provided with an energy-dissipating device

at the toe for discharge to a swale or other acceptable natural drainage areas; and

ii. Stormwater retention and detention systems, including percolation systems utilizing buried pipe, require a geotechnical assessment that indicates such a system shall not affect slope stability and require the systems to be designed by a licensed civil engineer. The licensed civil engineer shall also certify that the systems are installed as designed.

f. Sewage Disposal System Drainfields. For the purpose of landslide or hazard areas, the sewage disposal drainfields shall be located outside of the hazard area buffer, unless otherwise justified by a qualified geotechnical engineer. The septic system drainfield must be in compliance with all local government health regulations.

2. Development Standards—Seismic Hazard Areas. All development within areas that meet the classification for seismic hazard areas shall comply with the International Building Code. A critical areas permit is not required by these regulations for seismic hazards.

3. Development Standards—Mine Hazard Areas. Development adjacent to a mine hazard area is prohibited unless the applicant can demonstrate the development will be safe. If a proposal is located adjacent to a mine hazard area, a geotechnical assessment may be required.

4. Development Standards—Volcanic Hazard Areas. Development shall comply with existing Federal Emergency Management Agency regulations for floodplain management. A critical areas permit is not required by these regulations for development in a volcanic hazard area.

5. Designations. Lands in the city meeting the classification criteria for geologic hazard areas are hereby designated, under RCW 36.70A, as geologic hazard areas designated on the city's geologic hazard map.

6. Critical Aquifer Recharge Areas

A. Classification—Critical Aquifer Recharge Areas

1. For the purposes of this classification, the critical aquifer recharge areas are determined by the combined effects of soil types and hydrogeology. (Critical Aquifer Recharge Map, Cowlitz-Wahkiakum Council of Governments, 1993).

2. High Susceptibility. Areas, identified on the aquifer recharge map, with a very high susceptibility to contamination of the underlying aquifer due to high soil permeability and high water table.

B. Regulated Activities. The following activities are regulated in critical aquifer recharge areas located within jurisdictional shoreline areas:

1. Aboveground and Underground Storage Tanks and Vaults. Aboveground or underground storage tanks or vaults for the storage of hazardous substances or dangerous wastes as defined in WAC 173-303, Dangerous Waste Regulations, or any other substances, solids, or liquids in quantities identified by the county health department, consistent with WAC 173-303, as a risk to groundwater quality shall conform to the Uniform Fire Code, WAC 173-360, and underground storage tank regulations.

2. Utility Transmission Facilities. Utility facilities that carry liquid petroleum products or any other hazardous substance as defined in WAC 173-303.

3. Land Divisions. Subdivisions, short subdivisions and other divisions of land will be evaluated for their impact on groundwater quality within the aquifer recharge areas. The following measures may be required:

a. An analysis of the potential contaminate loading;

b. Alternative site designs, phased development and/or groundwater quality monitoring;

c. Open spaces within development proposals; and/or

d. Community/public water systems and community drainfields.

C. Hydrogeologic Testing and Site Evaluation.

1. Hydrogeologic testing and site evaluation may be required for any regulated activity. If federal or state regulations require hydrogeologic testing, the City may waive the requirement for additional testing; provided, the director has adequate factual information to evaluate the proposal.

2. If hydrogeologic testing and site evaluation are required, they shall be conducted by a qualified expert and must include but not be limited to the requirements in Appendix C-6.

3. Development that negatively impacts the quality of critical aquifer recharge areas shall be prohibited unless the hydrogeologic testing and site evaluation satisfactorily demonstrate that significant adverse impacts will be mitigated.

7. Mitigation Plan Performance Standards

All critical areas mitigation projects required pursuant to these regulations either as a permit condition or as the result of an enforcement action shall follow a mitigation plan approved by the City and prepared by a qualified expert on behalf of the applicant.

A. Mitigation in order of preference is as follows:

1. Avoiding the impact altogether by not taking a certain action or parts of actions;

2. Minimizing impacts by limiting the degree or magnitude of an action and its implementation;

3. Rectifying impacts by repairing, rehabilitating, or restoring the affected environment;

4. Reducing or eliminating an impact over time by preservation and maintenance operations during the life of the action; and

5. Compensating for an impact by replacing or providing substitute resources or environments.

B. When a mitigation plan is required it shall be approved by the City prior to any site disturbance. The City may seek assistance from resource agencies prior to making a decision. At a minimum the plan shall meet the following standards:

1. The mitigation plan shall be prepared by qualified expert and shall be acceptable to the City;

a. The mitigation plan shall include:

i. An assessment of the existing function and values of the critical area;

ii. The functions and values that will be lost; and

iii. The critical area's expected functions and values after mitigation.

b. Objectives shall be stated in measurable terms, if feasible;

c. The mitigation plan shall specify and describe how functions and values will be replaced;

d. The mitigation plan shall include provisions for monitoring the mitigation area as reasonably necessary to determine whether stated objectives have been accomplished. A contingency plan shall be included in the event the stated objectives are not accomplished;

e. Mitigation shall be provided on-site, except where on-site mitigation is not scientifically feasible, economical, or practical due to physical features of the property. The burden of proof shall be on the applicant to demonstrate that mitigation cannot be provided on-site;

f. When mitigation cannot be provided on-site, mitigation shall be provided in the immediate vicinity of the permitted activity on property owned or controlled by the applicant where such mitigation is practical and beneficial to the critical area and associated resources. Where possible, this means within the same hydrologic unit as the location of the proposed project; and

g. When considering off-site mitigation, preference should be given to using alternative mitigation, such as a mitigation bank, an in-lieu fee program, or advance mitigation.

C. Restoration shall be required when a critical area has been altered prior to project approval.

APPENDIX C-1 — Geotechnical Assessments

A. The applicant must submit a geotechnical assessment prepared by a qualified expert.

B. The geotechnical assessment shall typically include at a minimum the following:

   1. A discussion of the surface and subsurface geologic conditions of the site;

   2. A site plan of the area delineating all areas of the site subject to landslide hazards based on mapping and criteria; and

   3. A contour map of the proposed site, at a reasonable scale (not smaller than one inch equals two hundred feet) which clearly delineates slopes for ranges between fifteen and twenty-nine percent and thirty percent and greater, and includes figures for area coverage of each slope category on the site. If any springs or seeps are present, their location should be indicated on the map.

C. Site Evaluation. Evaluation of the ability of the site to accommodate the proposed activity.

APPENDIX C-2 —Erosion Hazard Assessments (Stream/Hillsides)

The applicant must submit an erosion hazard assessment prepared by a qualified expert.

A. The erosion hazard assessment shall typically include, at a minimum, the following:

1. An overview of existing channel characteristics and stream hydraulics at the subject property;

2. An assessment of the probability for stream induced erosion to occur on the subject property and the estimated extent of the property that would be affected;

3. A site map of the property, drawn to scale, delineating the relationship of the stream to the property, and existing erosion areas and/or potential erosion areas, and the proposed development, including structural dimensions;

4. A cross-section map, drawn to scale and at five-foot contour intervals from the edge of the river's surface to the furthest landward boundary of the property, and including the proposed development; and

5. Site Evaluation. Evaluation of the ability of the site to accommodate the proposed activity.

B. Hillsides. In addition to the basic critical area report requirements, a critical area report for an erosion hazard or landslide hazard area associated with hillsides shall include the following information at a minimum:

1. Site Plan. The report shall include a copy of the site plan for the proposal showing:

a. The height of slope, slope gradient, and cross section of the project area;

b. The location of springs, seeps, or other surface expressions of groundwater on or within two hundred feet of the project area or that have potential to be affected by the proposal. A distance of two hundred feet is suggested so that geological features that might affect the proposal are included in the critical area report. It may be necessary to include features further than two hundred feet from the project area in some instances, such as a series of related geological features that extend more than two hundred feet; and

c. The location and description of surface water runoff.

2. Geotechnical Analysis. The geotechnical analysis shall specifically include:

a. A description of the extent and type of vegetative cover;

b. An estimate of load capacity including surface and groundwater conditions, public and private sewage disposal systems, fills and excavations and all structural development;

c. An estimate of slope stability and the effect construction and placement of structures will have on the slope over the estimated life of the structure;

d. An estimate of the bluff retreat rate that recognizes and reflects potential catastrophic events such as seismic activity or a one-hundred-year storm event;

e. Consideration of the run-out hazard of landslide debris and/or the impacts of landslide run-out on down slope properties;

f. A study of slope stability including an analysis of proposed angles of cut and fill and site grading;

g. Recommendations for building limitations, structural foundations, and an estimate of foundation settlement; and

h. An analysis of proposed surface and subsurface drainage, and the vulnerability of the site to erosion.

6. Erosion and Sediment Control Plan. For any development proposal on a site containing an erosion hazard area, an erosion and sediment control plan shall be required. The erosion and sediment control plan shall be prepared in compliance with requirements set forth in the locally adopted stormwater management regulations.

7. Drainage Plan. The report shall include a drainage plan for the collection, transport, treatment, discharge and/or recycle of water prepared in accordance with the locally adopted surface water management plan. The drainage plan should consider on-site septic system disposal volumes where the additional volume will affect the erosion or landslide hazard area.

8. Mitigation Plans. Hazard and environmental mitigation plans for erosion and landslide hazard areas shall include the location and methods of drainage, surface water management, locations and methods of erosion control, a vegetation management and/or replanting plan and/or other means for maintaining long-term soil stability.

9. Monitoring Surface Waters. If the community development director determines that there is a significant risk of damage to downstream receiving waters due to potential erosion from the site, based on the size of the project, the proximity to the receiving waters, or the sensitivity of the receiving waters, the critical area report shall include a plan to monitor the surface water discharge from the site.

The monitoring plan shall include a recommended schedule for submitting monitoring reports to the city of Kelso.

APPENDIX C-3—Geotechnical Report

The geotechnical report shall typically include at a minimum the following. Technical justification shall be provided where the qualified expert does not deem any information applicable.

A. Site Geology Information Required.

1. Topographic Data. Contour map of proposed site at a scale of one inch equals two hundred feet, which clearly delineates the slopes between fifteen and twenty-nine percent and thirty percent and greater, including figures for area coverage of each slope category on the site.

2. Subsurface Data. Boring logs and exploratory methods, soil and rock stratigraphy, groundwater levels including seasonal changes.

3. Site History. Description of any prior grading, soil instability, or slope failure.

4. Seismic Hazard. Data concerning the vulnerability of the site to seismic events.

B. Geotechnical Engineering Information Required.

1. Slope stability studies and opinion of slope stability;

2. Proposed angles of cut and fill slopes and site grading requirements;

3. Structural foundation requirements and estimated foundation settlements;

4. Soil compaction criteria;

5. Proposed surface and subsurface drainage;

6. Lateral earth pressures;

7. Erosion vulnerability of site;

8. Suitability for fill;

9. Laboratory data and soil index properties for soil samples; and

10. Building limitations.

C. Site Evaluation. Evaluation of the ability of the site to accommodate the proposed activity.

Where a valid geotechnical report has been prepared within the last five years for a specific site, and where the proposed activity and surrounding site conditions are unchanged, said report may be utilized and a new assessment may not be required.

APPENDIX C-4 —Wetland critical areas report

A wetland critical areas report shall include the following. If the qualified expert deems any of the following information to be inapplicable, he or she shall provide technical justification.

A. Narrative. The report narrative must include all of the following:

1. The name and contact information of the applicant;
2. The name, qualifications, and contact information of the primary author(s) of the wetland critical area report;
3. Location information (legal description, parcel number and address);
4. Site characteristics, including topography, total acreage, delineated wetland acreage, other water bodies, vegetation, soil types, etc.;
5. Identification and characterization of all critical areas, water bodies, shorelines, floodplains, and buffers on or adjacent to the proposed project area. For areas off site of the project site, estimate conditions within 300 feet of the project boundaries using the best available information;
6. Identification of the wetland's rating as defined in these regulations;
7. Analysis of functions and values of existing wetlands and buffers, including flood control, water quality, aquifer recharge, fish and wildlife habitat, and hydrologic characteristics;
8. A complete description of the proposed project and its potential impacts, including an estimation of acreages of impacts to wetlands and buffers based on the field delineation and survey, and any impacts due to hydroperiod alterations;
9. Discussion of project alternatives, including any feasible options for total avoidance of impacts to wetland areas and buffers;
10. A wetland buffer width recommendation and rationale for all wetlands on or adjacent to the site, if different from buffers required in these regulations;
11. If mitigation for wetland impacts is proposed, a description and analysis of that mitigation; and
12. A conservation strategy for habitat and native vegetation that addresses methods to protect and enhance on-site habitat and wetland functions.

B. Vicinity map drawn to scale and including a north arrow, public roads, and other known landmarks in the vicinity.

C. National Wetlands Inventory Map (U.S. Fish and Wildlife Service) and/or a Cowlitz County wetland inventory map identifying wetlands on or adjacent to the site.

D. Site map drawn to a usable scale, one inch equals one hundred feet or better, and including a north arrow and all of the following requirements:

1. Site boundary/property lines and dimensions;

2. Wetland boundaries based upon a qualified wetland professional's delineation, and depicting sample points and differing wetland types if any;

3. Recommended wetland buffer boundary;

4. Buffers for off-site critical areas that extend onto the project site;

5. Internal property lines such as rights-of-way, easements, etc.;

6. Existing physical features of the site, including buildings and other structures, fences, roads, utilities, parking lots, etc.;

7. The location of the development proposal, including grading and clearing limits; and

8. Topographical variations.

E. An on-site wetland delineation report, including data sheets, prepared by a qualified expert. The wetland boundaries shall be staked and flagged. The report shall include:

1. A description of the methodologies used to conduct the wetland delineations and ratings, including references;

2. Photos documenting that the wetland boundaries have been staked and flagged; and

3. Wetland rating forms, including a description of and score for each function, per Wetland Ratings Section (Section 2.B) of these regulations; hydrogeomorphic classification; wetland acreage based on a professional survey from the field delineation (acreages for on-site portion and estimates for entire wetland area including off-site portions, if field delineation of the off-site portion is infeasible); Cowardin classification of vegetation communities; habitat elements; soil conditions based on site assessment and/or soil survey information; and to the extent possible, hydrologic information such as location and condition of inlets/outlets (if they can be legally accessed), estimated water depths within the wetland, and estimated hydroperiod patterns based on visual cues (e.g., algal mats, drift lines, flood debris, etc.). Provide acreage estimates, classifications, and ratings based on entire wetland complexes, not only the portion present on the proposed project site;

F. Documentation of any other field work performed on the site, e.g., baseline hydrologic data, etc.

G. A copy of the site plan sheet(s) for the project must be included with the written report and must include, at a minimum:

1. Maps (to scale) depicting delineated and surveyed wetland and required buffers on site, including buffers for off-site critical areas that extend onto the project site; the development proposal; other critical areas; grading and clearing limits; and areas of proposed impacts to wetlands and/or buffers (include square footage estimates).

2. A depiction of the proposed stormwater management facilities and outlets (to scale) for the development, including estimated areas of intrusion into the buffers of any critical areas.

APPENDIX C-5 —Habitat Management Plan Requirements

At a minimum, the habitat management plan shall typically contain the following information. Technical justification shall be provided where the qualified expert does not deem any information applicable.

A. A description of state or federally designated endangered, threatened or sensitive fish or wildlife species, or species of local importance, on-site or adjacent to the subject property within a distance typical of the normal range of the species.

B. A description of the critical wildlife habitat for the identified species known or expected to be located on-site or immediately adjacent to the subject property.

C. A site plan that clearly identifies and delineates critical fish and wildlife habitats found on-site or immediately adjacent to the subject property.

D. An evaluation of the project's effects on critical fish and wildlife habitat both on and adjacent to the subject property.

E. A summary of any federal, state, or local management recommendations that have been developed for the critical fish or wildlife species or habitats located at the site.

F. A statement of measures proposed to preserve existing habitats and restore area degraded as a result of proposed activities.

G. A description of proposed measures that mitigate the impacts of the project.

H. An evaluation of ongoing management practices which will protect critical fish and wildlife habitat after the project site has been fully developed, including proposed monitoring and maintenance programs of the subject property.

APPENDIX C-6 —Hydrogeologic Testing and Site Evaluation

If hydrogeologic testing and site evaluation are required, they shall be conducted by a qualified expert and typically include at least the following. Technical justification shall be provided where the qualified expert does not deem any information applicable.

A. A characterization of the site and its relationship to the aquifer and evaluation of the ability of the site to accommodate the proposed activity.

B. A discussion of the effects of the proposed project on groundwater quality and quantity.

C. Recommendations on appropriate mitigation, if any, to assure that there shall be no significant degradation of groundwater quality or quantity.

D. In addition, the testing and evaluation must include, but not be limited to, an analysis of:

    1. Geologic setting and soils information of site and surrounding area.

    2. Water quality data, including pH, temperature, conductivity, nitrates, and bacteria.

    3. Location and depth to perched water tables.

    4. Recharge potential of facility site (permeability/transmissivity).

    5. Local groundwater flow, direction and gradient.

    6. Surface water locations within one thousand feet of the site.